Update on Headache in Primary Care

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Learning Objectives

- Describe the difference between “Primary” and “Secondary” headaches
- Perform a “Headache History”
- List factors prompting additional evaluation
- Explore the differential diagnosis of headache
- Describe treatment options for acute migraine

Epidemiology of Headache

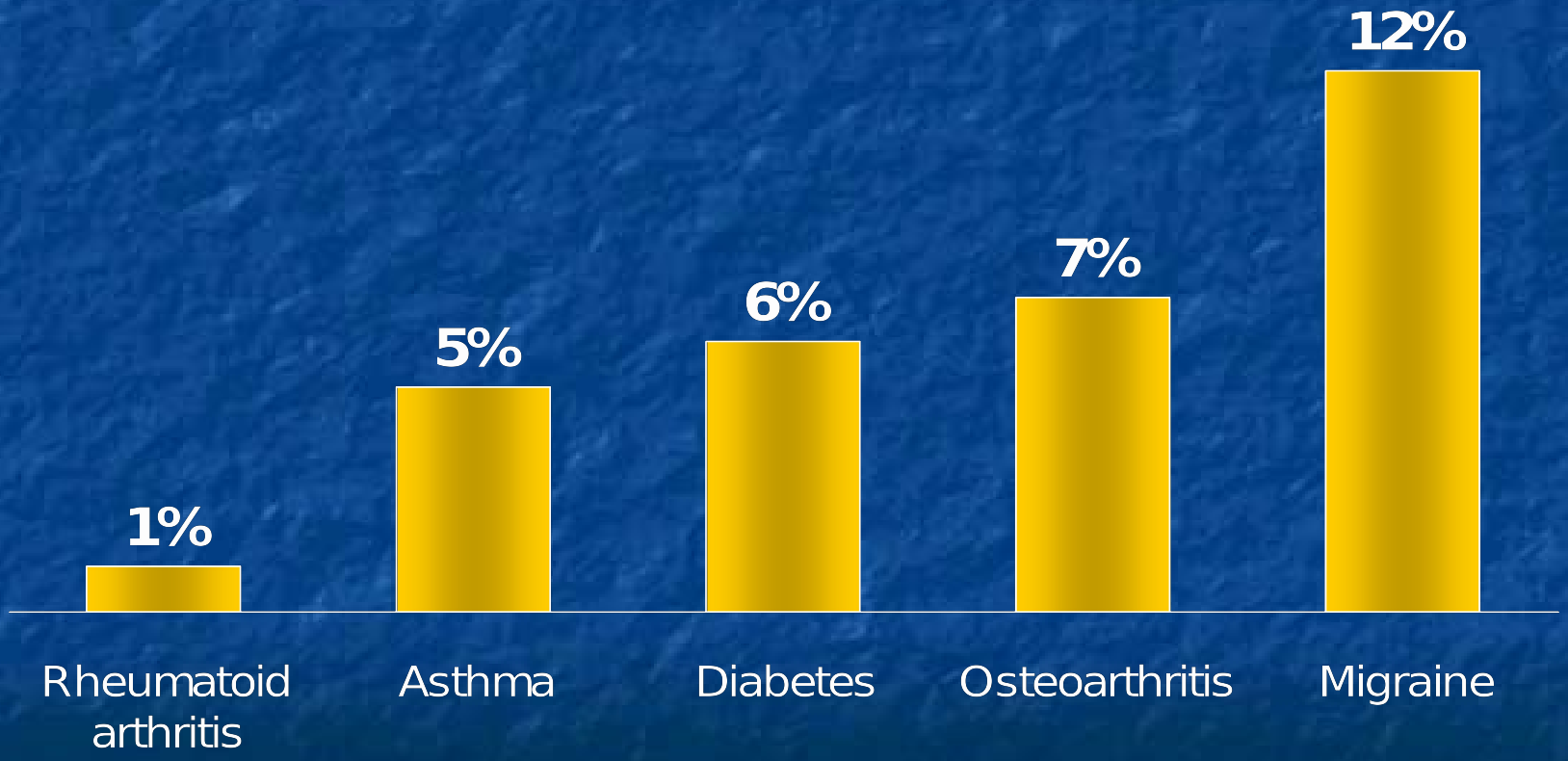
- *THE* most common pain problem seen in family practice
  - 10 million office visits each year in the U.S.
  - Direct medical and medication costs of migraine may reach $10 billion per year
  - Indirect costs estimated at $5 to $7 billion per year

Epidemiology

- Estimated 28 million Americans
- AMS II (American Migraine Study, 1999)
  - 12.6 % prevalence (18% women, 6.5% men)
  - 1 in 4 households has a least 1 migraineur
- Approximately 50% remain undiagnosed
- 66% of migraine sufferers have required bed rest during the past year – 112 M days
- Average of 5 medications and 3.5 years before effective treatment

Migraine is more common than asthma & diabetes combined

Disease Prevalence in the US Population



Primary Headaches

- Benign, recurrent
- NOT associated with underlying pathology

(from Solomon S, Lipton RB. Headache 1991;31(6):384-7.)

Primary Headaches

- Migraine (with or without aura)
- Tension-type headache (episodic or chronic)
- Cluster headache
- Other benign headache
- Posttraumatic headache
- Drug rebound headache

(from Solomon S, Lipton RB. Headache 1991;31(6):384-7.)

Secondary Headache

- Sudden, progressive
- Associated with pathology
- May require immediate action_

Secondary Headache

- Aneurysms, AVMs and Subarachnoid Hemorrhage
- Thunderclap Headache
- Meningitis
- Stroke
- Carotodynia
- Trigeminal Neuralgia
- Temporal Arteritis
- Hypertension
- Benign Intracranial Hypertension
- Lumbar Puncture Headache
- Sinus Headache

History

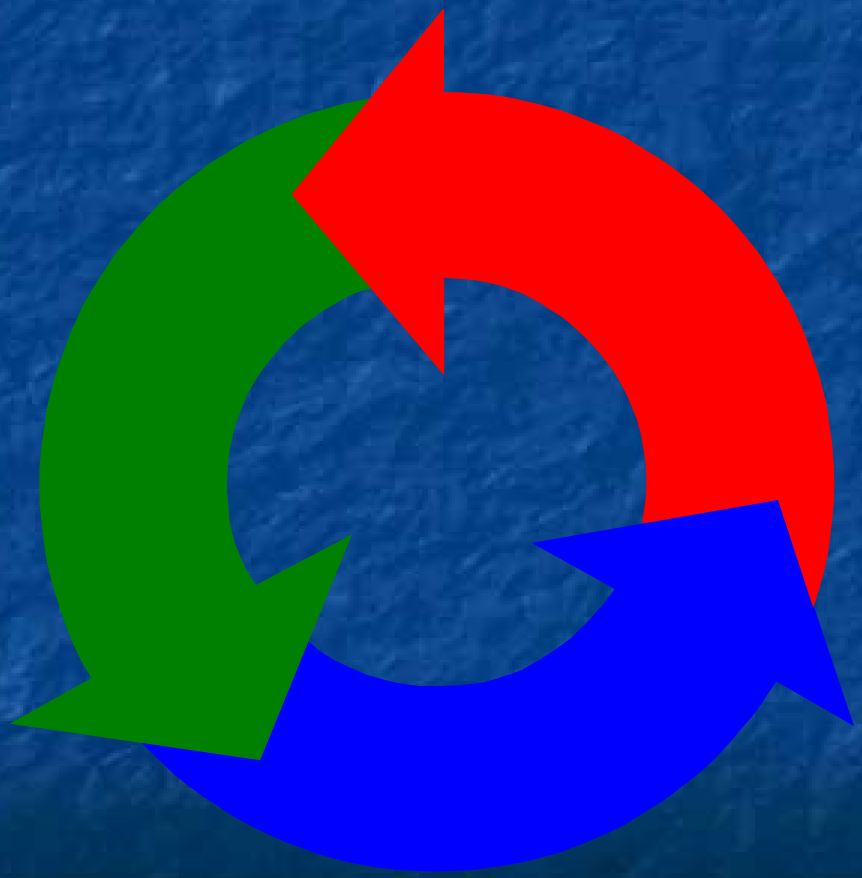
- A thorough history is *the* single most useful tool for defining diagnosis and initiating management

Taking a Headache History

- Do you routinely have headaches?
  - If so, is this headache typical of one of your routine headaches?
  - If not, is this your “first or worst” headache (grade severity on scale of 1 – 10)

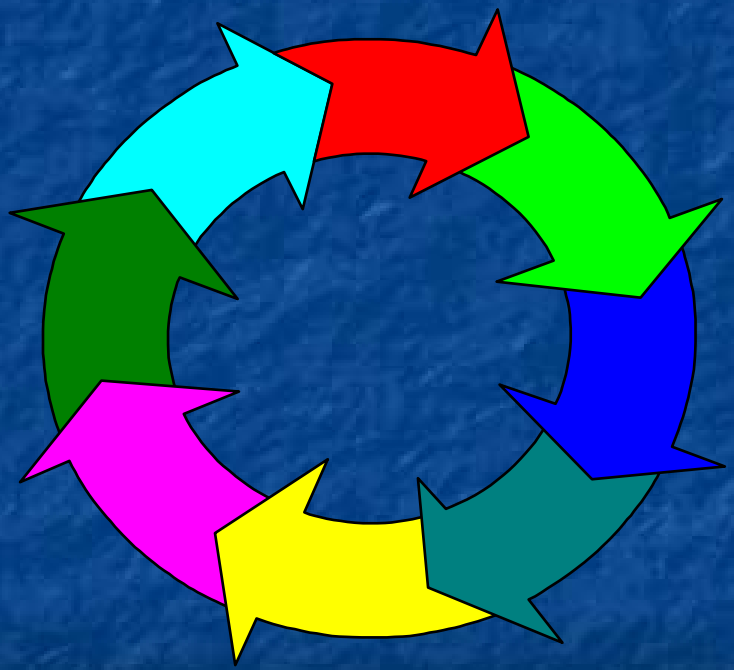
Taking a Headache History

- Describe any symptoms prior to the headache onset, during the headache, and those you currently have.



Taking a Headache History

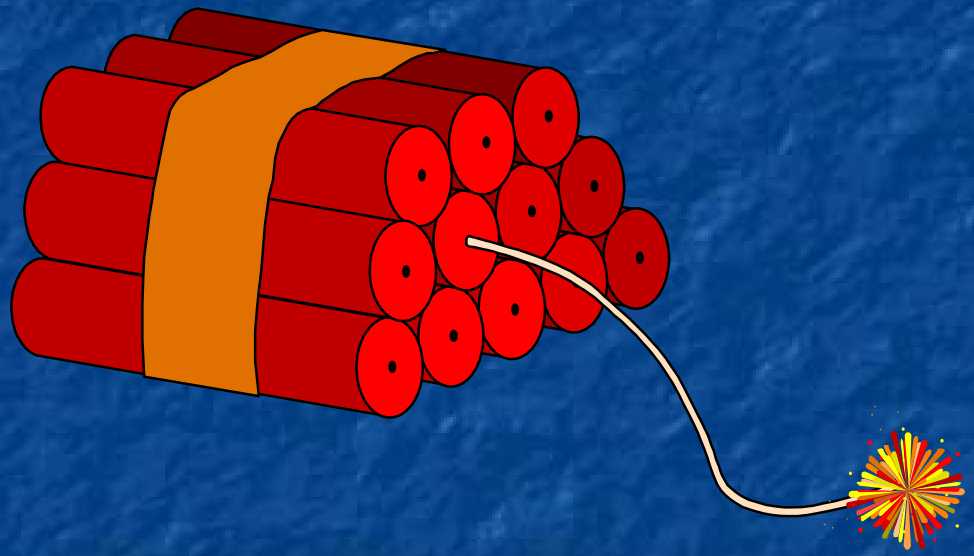
- Describe the onset of this headache (e.g. time of onset, nature of onset – gradual, sudden, subacute)



Taking a Headache History

- Describe the location and, if applicable, any area to which your pain radiates.

Taking a Headache History



- Describe the quality of your pain (e.g., throbbing, stabbing, dull, pressure, etc.)

Taking a Headache History

- Do you take any medications? (e.g., prescription, alternative or herbal, or over-the-counter; include caffeine-containing products)

Rx?

Taking a Headache History

- Have you had any recent trauma or medical/dental procedure?

Taking a Headache History

- Do you have any other medical conditions? (e.g., HIV, cancer, etc.)

Signs & Symptoms of Underlying Disease

Signs & Symptoms of Underlying Disease

- Intense HA without a hx of previous significant HA (“First or Worst”)
- Marked change in HA pattern
  - precipitous onset, unusual severity or increased frequency
- First HA in a patient over age 50
- Hx of head trauma, malignancy or coagulopathy
- Unexplained vomiting

Signs & Symptoms of Underlying Disease

- Persistent or new neurologic deficits
- Diplopia
- Papilledema or retinal hemorrhage
- Excessive elevation of blood pressure
- Fever
- Nuchal rigidity, positive Kernig or Brudzinski signs

Signs & Symptoms of Underlying Disease

- Precipitation of HA by exertion or sex
- Increased HA and worsening of patient's general condition under observation

(from Davidoff RA. Migraine. Contemporary neurology serie42. Philadelphia: F.A Davis, 1995:108.)

Guidelines for CT/MRI

May be indicated when *any* is present

- Decreased MS
- Exertional HA
- Nuchal rigidity
- Focal neuro signs
- Onset age > 50
- *"First or worst"*

May not be indicated when *all* are present

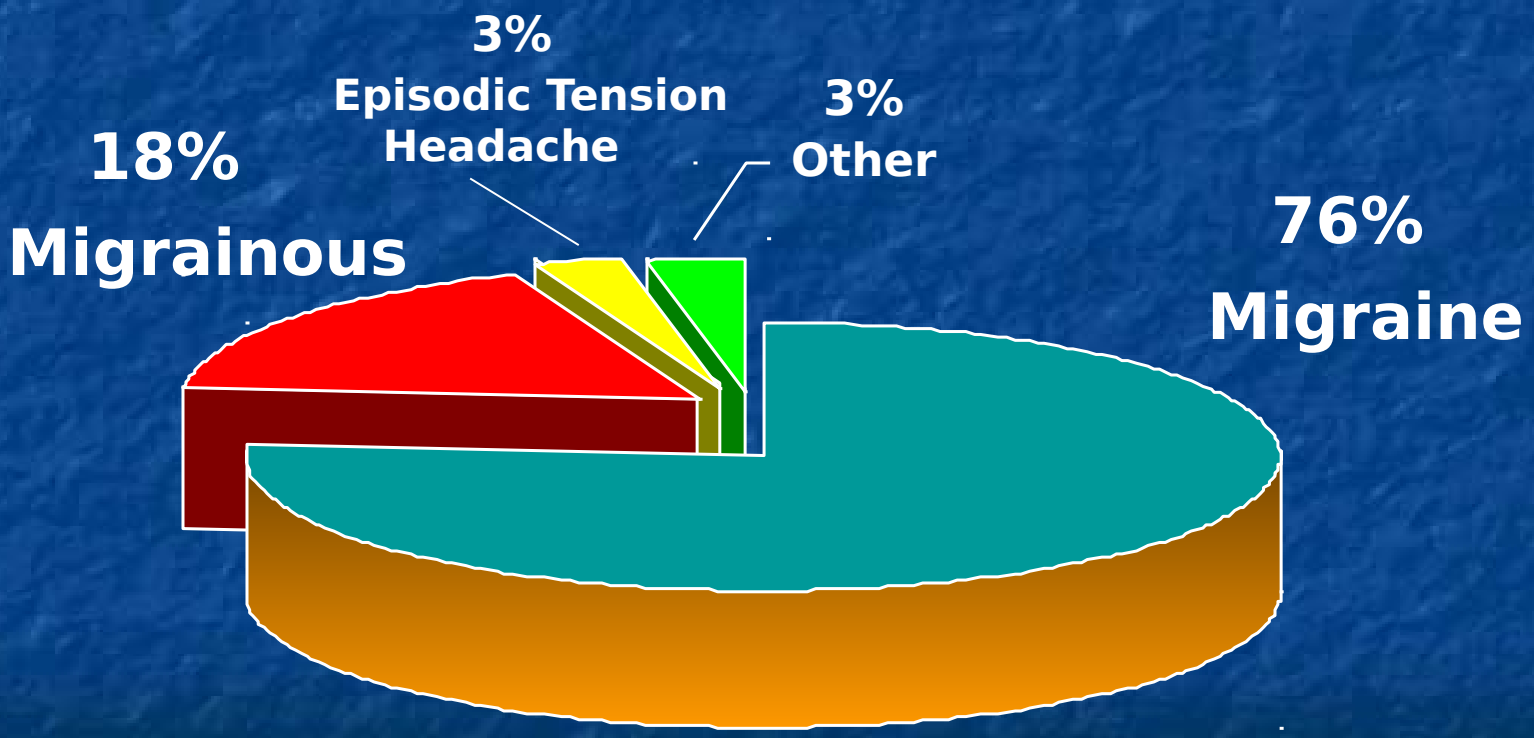
- Hx of similar HA
- Normal VS
- Normal MS
- Supple neck
- No neuro signs
- Improvement of HA without meds

Primary headaches

- Benign headache disorders (IHS)
  - Migraine, with or without aura
  - Tension-type headache
  - Medication overuse headache
  - Cluster headache
  - ? *“Sinus headache”*

Patients presenting with HA most likely have migraine

Of 377 patients who returned diaries:



Newman et al. Poster presented at: The Diamond Headache Clinical Research and Educational Foundation Meeting; July 16-20, 2002; Lake Buena Vista, Fl.

Migraine without Aura (formerly *common* migraine)

- HA lasting **4 to 72 hrs** (untreated or successfully treated)
- HA associated with **at least 2** of the following: unilateral location, pulsating quality, moderate to severe intensity or aggravated by routine physical activity
- During HA, **at least one** of the following: nausea, vomiting, photophobia, phonophobia
- at least **5 attacks** fulfill the above criteria

Migraine with aura (formerly *classic* migraine)

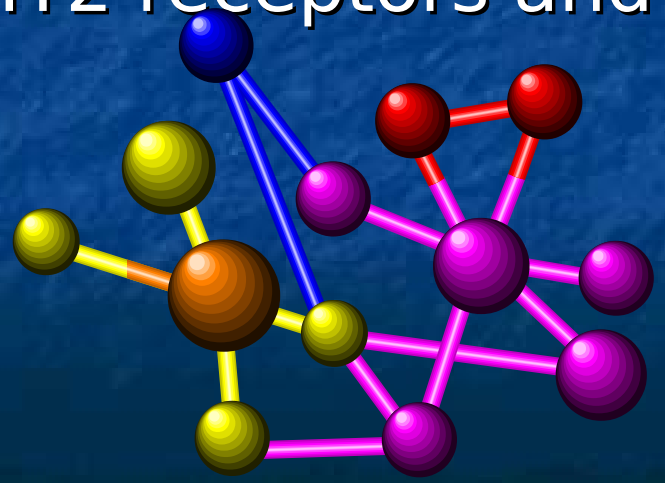
- **At least 3** of the following:
  - Aura develops over four minutes, or two or more aura symptoms develop in succession
  - No single aura lasts more than 60 min.
  - HA follows aura
    - rarely, aura and HA begin simultaneously, or HA may precede aura.
  - No evidence of organic disease
  - At least **2 attacks** fulfill the above criteria

Other Migraine Types:

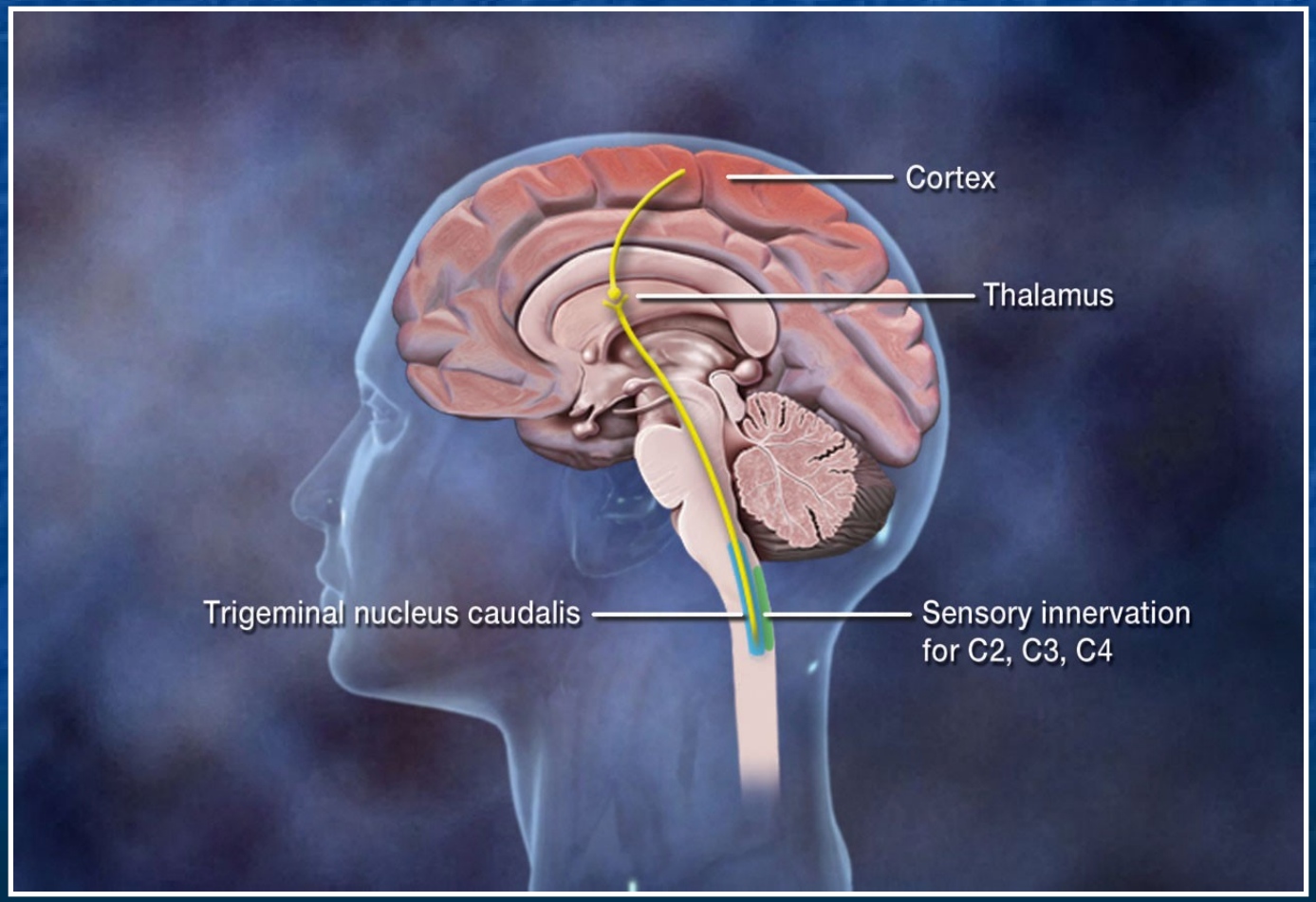
- migraine in children
- menstrual migraine
- migraine during pregnancy
- Retinal migraine
- Ophthalmoplegic migraine
- Basilar migraine

Migraine - Pathogenesis

- **Serotonin** (5-hydroxytryptamine or 5-HT) considered a key mediator of migraine
  - Sumatriptan and dihydroergotamine (DHE-45) inhibit release of inflammatory neuropeptides
  - Beta blockers inhibit 5-HT2 receptors and prevent attacks

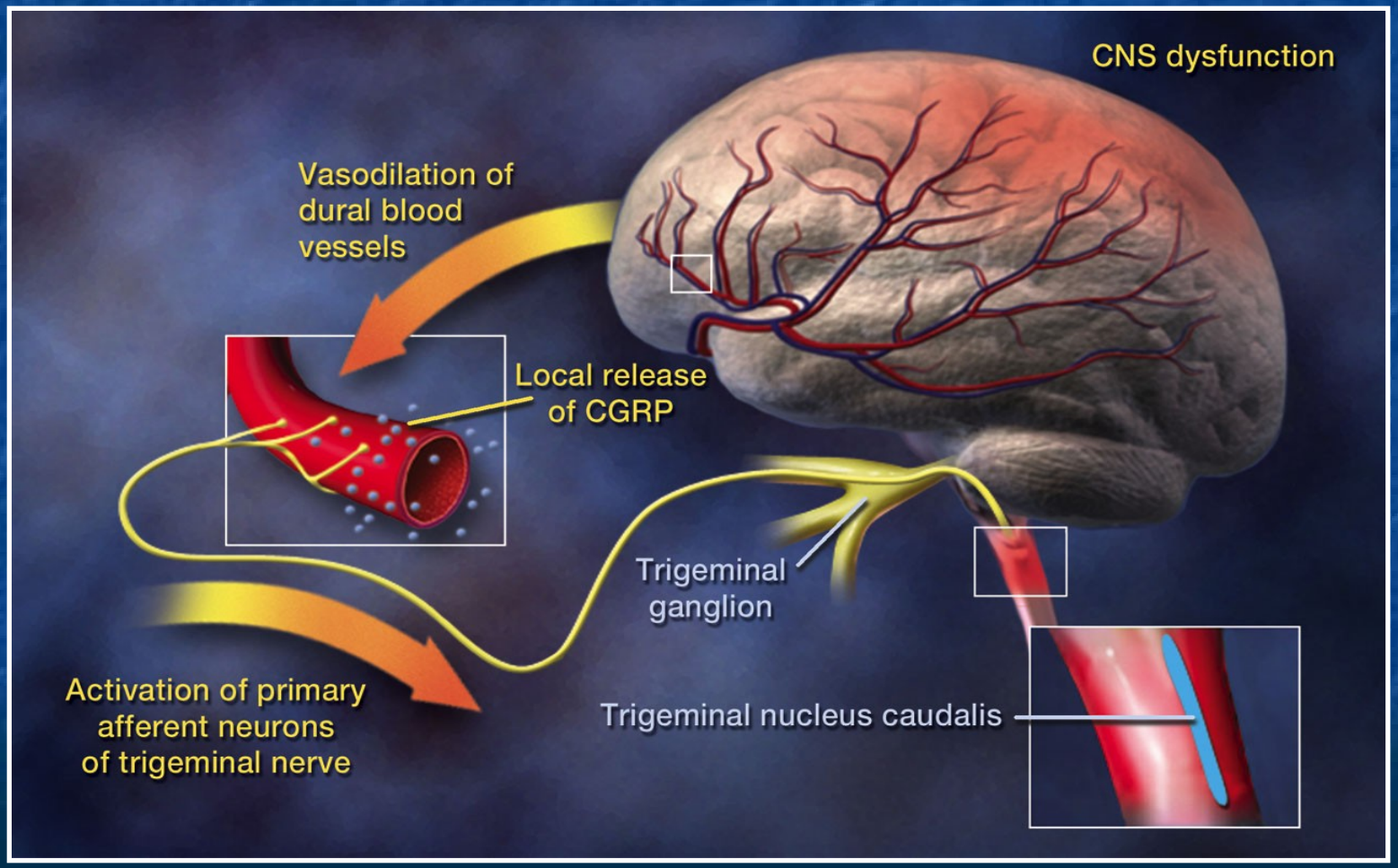


“Migraine generator”: trigeminal nucleus caudalis (TNC)



Courtesy of GlaxoSmithKline

The trigemino-vascular hypothesis of migraine pain



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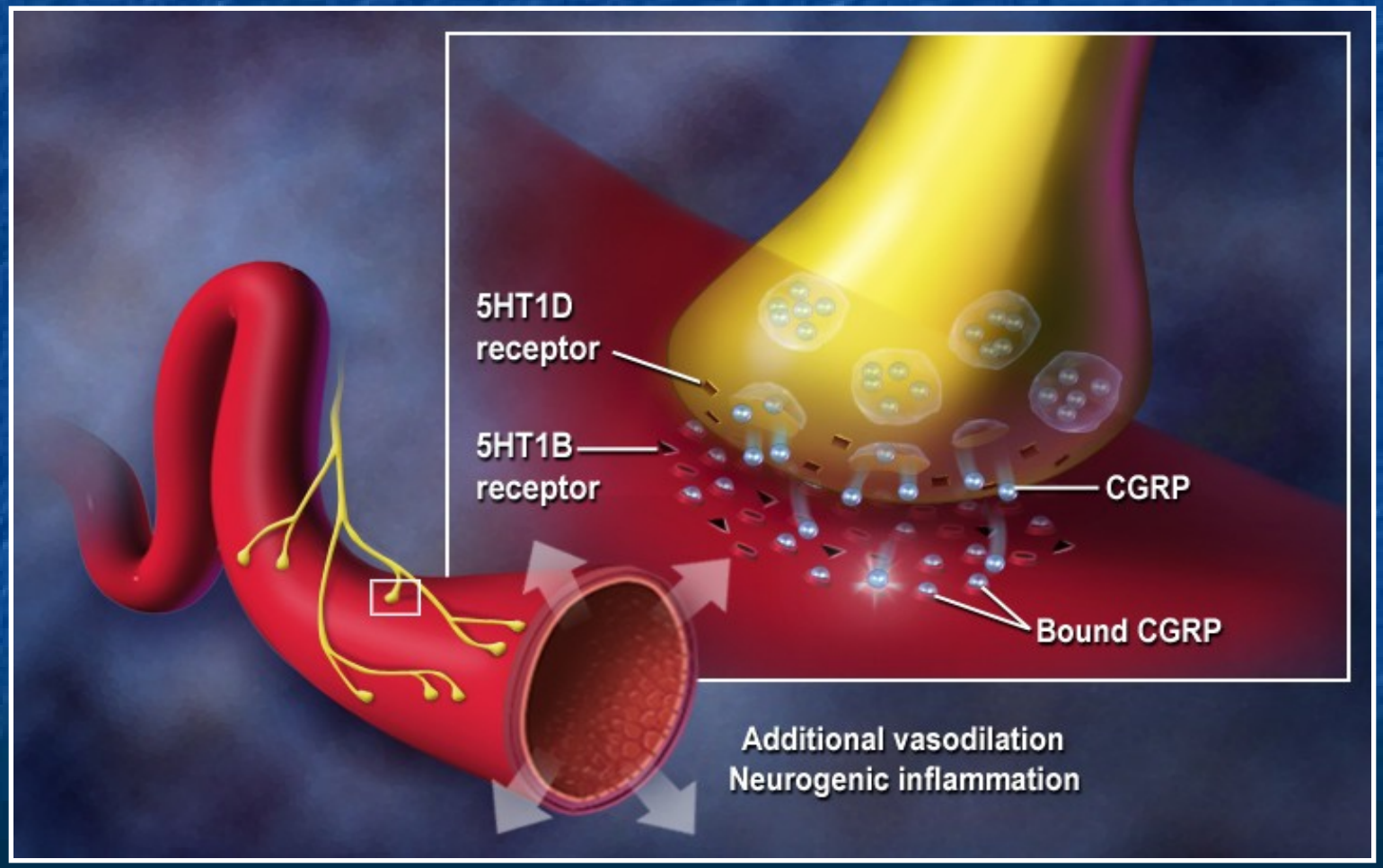


Courtesy of GlaxoSmithKline

IHS criteria for episodic tension-type headache

- HA pain + 2 of the following:
  - pressing/tightening quality
  - bilateral
  - not aggravated by routine physical
- HA pain with both of the following:
  - no nausea/vomiting
  - photo-phonophobia absent or only one present
- Fewer than 15 days/month with HA
- No evidence of organic disease

Tension-Type Headache

- **Episodic** Tension-Type Headache
  - Recurrent HA lasting **30 min to 7 days**
  - Pain: pressing or tightening
  - Intensity: mild or moderate
  - Location: bilateral, not worsened by routine physical activity
  - Associated Sx: Nausea is absent; photophobia or phonophobia may be present
  - Sx occur **in fewer than 15 days per month** with no evidence of organic disease

Tension-Type Headache

- **Chronic** Tension-Type Headache
  - same characteristics as Episodic but occurs **at least 15 days per month for at least 6 mos** per year (a.k.a. “chronic daily HA”)
  - overuse of ergot preparations or pain medications is frequent

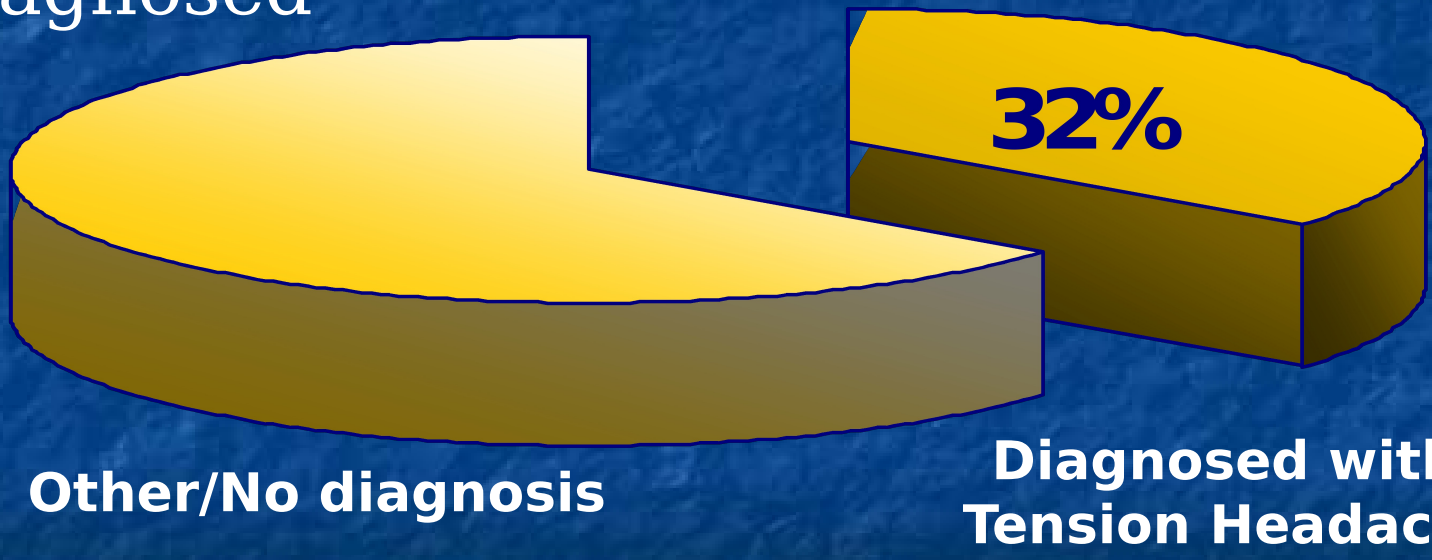
Migraine pain can be bilateral and non-pulsating

- 41% of migraine patients had bilateral pain.[1]
- 50% of the time, pain was non-pulsating[2]

1. Lipton et al. *Headache.* 2001;41:646-657.
2. Pryse-Phillips et al. *Can Med Assoc J.* 1997;156(9):1273-1287.

Undiagnosed patients receiving a dx of tension headache

Over 50% of migraineurs remain undiagnosed



Adapted from Lipton et al. American Migraine Study II. *Headache.* 2001;41:638-645.

Migaine vs. tension headache

- Continuum of benign, recurrent HA
- May be at 2 ends of a spectrum
  - severity, pulsating, nausea/vomiting
  - photophobia/phonophobia
  - aggravated by normal physical activity
- Many patients have more than one type of HA
- Treatment may be effective for either one

Cluster Headache

- Most severe recurrent HA seen in practice
- Location: **strictly unilateral** periorbital or temporal pain lasting **15 - 180 min.**
- Frequency: once every other night to 8 times daily
- Onset: 20 - 40 yrs
- Male:Female ratio is 5:1 to 20:1

Cluster Headache

- Sx on side of pain:
  - conjunctival injection, lacrimation, nasal congestion, rhinorrhea, forehead and facial sweating, miosis, ptosis or eyelid edema
- Precipitants: alcohol, histamine, nitroglycerine, smoking, stress
- At least **5 attacks** fulfilling these criteria
- No evidence of organic disease

Other Primary Headaches

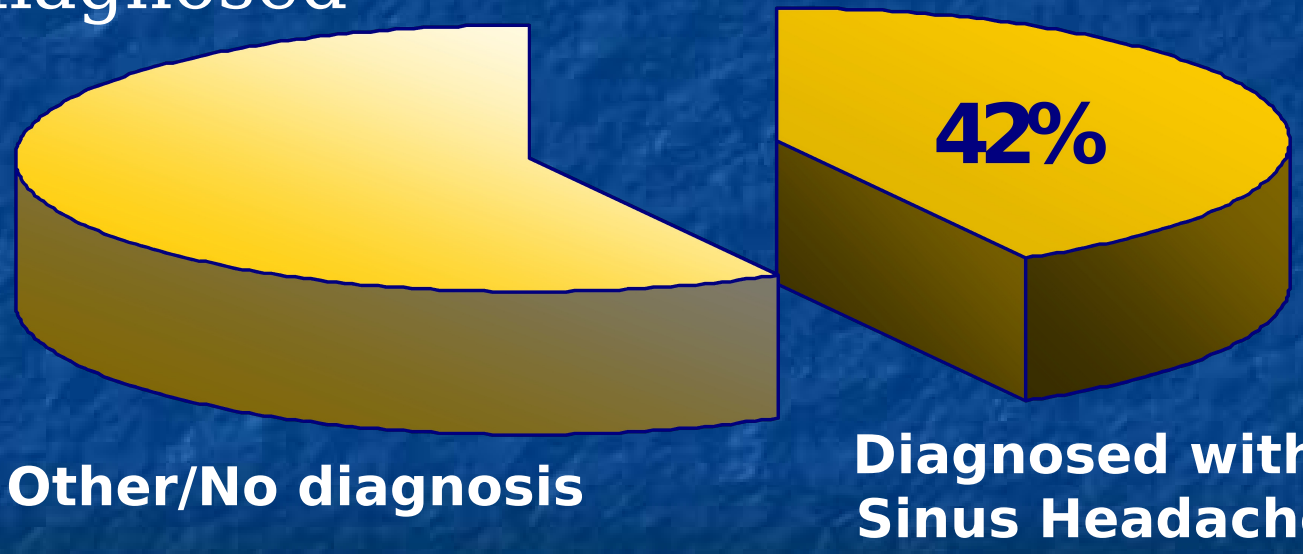
- Oromandibular Dysfunction: pain in the jaw on chewing
- Temporomandibular Joint Disease
  - Sx similar to oromandibular dysfunction
  - joint pathology is present on X-ray
  - persistent pain may require surgical replacement of the joint

Other Primary Headaches

- Chronic Paroxysmal Hemicrania
- Idiopathic Stabbing Headache
- Cold Stimulus Headache
- Benign Cough HA
- Benign Exertional Headache
- Headache Associated with Sexual Activity
- Headache Associated with Head Trauma

Undiagnosed patients receiving a diagnosis of sinus headache

Over 50% of migraineurs remain undiagnosed



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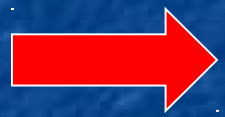
Approach to Migraine Treatment

Migraine triggers

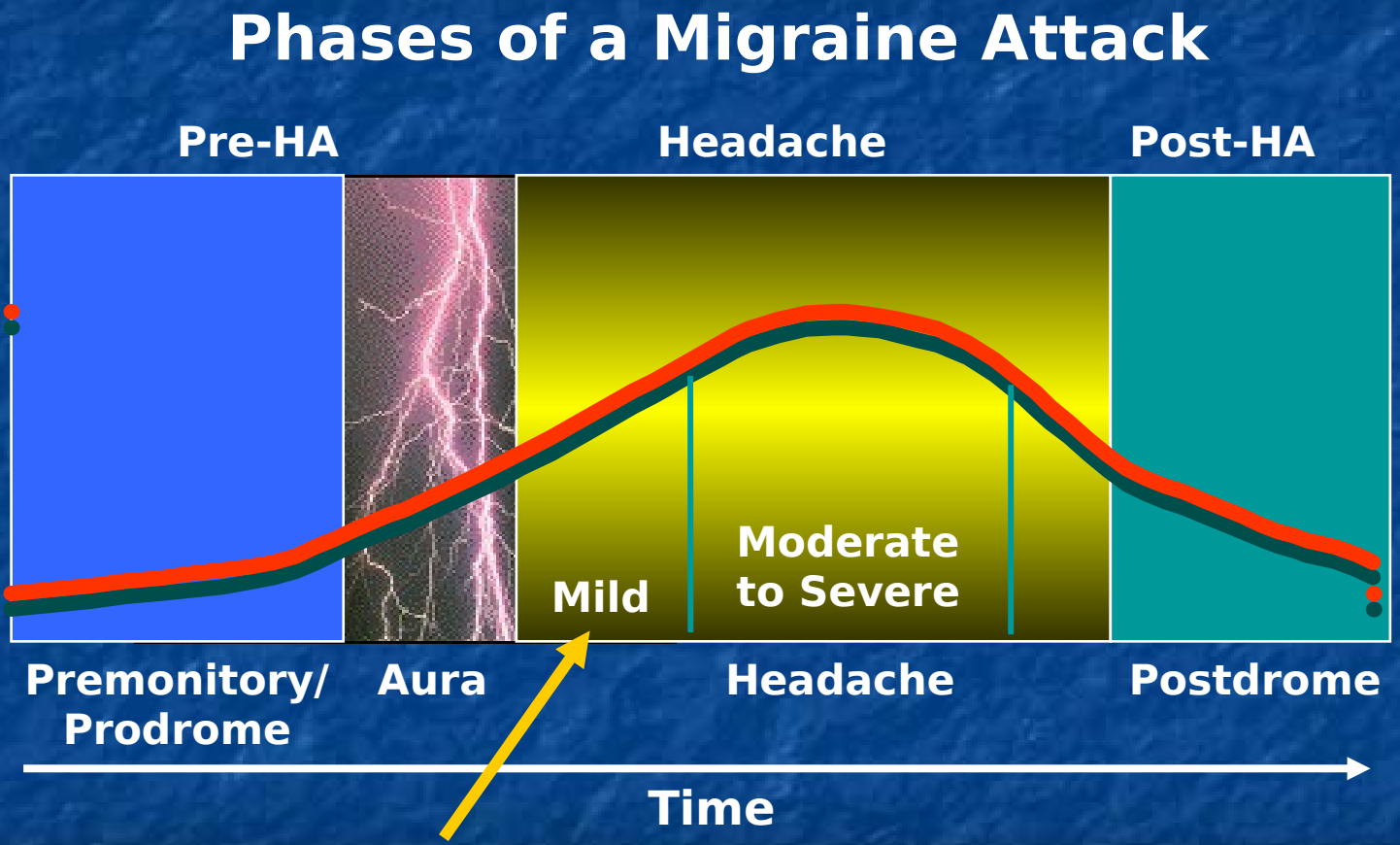
- Hormones
- Fasting
- Alcohol



The BIG Three

- Chronobiologic and environmental changes
  - CO, sensory stimuli, foods and beverages
- Drugs
- Stress

What is early intervention?

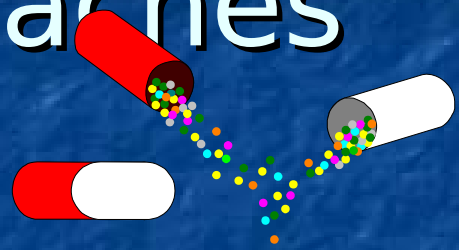


Treatment during Mild Phase

Adapted from Cady RK. *Clin Cornerstone.* 1999;1(6):21-32.

Courtesy of GlaxoSmithKline

Acute Medical Treatment of Migraine Headaches



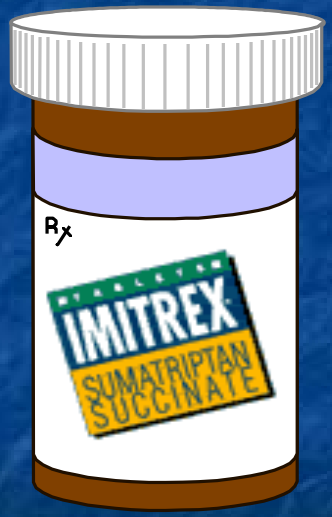
- Ergot Preparations
  - oral, sublingual and rectal formulations
  - most effective if taken early in an attack
  - may need adjunctive antiemetic
  - potent vasoconstrictors
  - contraindicated in patients with PVD, CAD, thrombophlebitis, marked HTN, pregnant or breast-feeding women or very elderly patients

Triptans

- Contraindications:
  - ischemic heart disease (angina, hx of MI, documented silent ischemia or Prinzmetal's angina),
  - uncontrolled HTN
  - concomitant use of ergotamine preparations
  - pregnancy
- decreased dose of triptans recommended if a MAO inhibitor is being taken

Acute Medical Treatment of Migraine Headaches

- Triptans
  - SQ, oral, & nasal spray forms



	Lipophilic	T_{max}	Half-Life (h)	Bioavail-ability	Elimination Route	Doses (mg)
Group 1 (fast onset, higher potency, higher recurrence)						
Sumatriptan	Low		2		Hepatic, MAO	
Tablet		2–2.5		14		25,50,100
Nasal spray		1		17		5, 20
SQ		0.2		97		6
Zolmitriptan	Moderate	2	2.5–3	40–48	Hepatic, CYP, MAO	2.5, 5
Rizatriptan	Moderate	1.3 (tab)	2–3	45	MAO, renal	5, 10
		1.6–2.5 (melt)				
Almotriptan	Moderate	1.4–4	3.3–3.7	80	CYP, MAO	12.5
Eletriptan	High	1–2	3.6–5.5	50	Hepatic, CYP3A4	20, 40
Group 2 (slower onset, lower potency, lower recurrence)						
Naratriptan	High	2–3	5–6.3	69	Renal, CYP	2.5
Frovatriptan	Low	2–4	25	24–30	Renal, hepatic	2.5

Prophylactic Treatment of Migraine Headaches

- Anticonvulsants
  - Divalproex sodium (Depakote) 250 - 1000 mg
  - monitor LFTs before & during therapy

Acute Medical Treatment of Migraine Headaches

- Dihydroergotamine (DHE-45)
  - chemically similar to ergotamine, less marked arterial vasoconstrictive properties
  - Injectable form (1 mg/mL) for IV or IM use
  - to prevent nausea, 10 mg metoclopramide IV or IM 20 - 30 min before use of DHE-45
  - both drugs, if given IV, are a slow push over at least 2 min

Prophylactic Treatment of Migraine Headaches

- Beta Blockers:
  - Nadolol (Corgard)
    20 to 240 mg per day
  - Propranolol (Inderal)
    40 to 320 mg per day
  - Atenolol (Tenormin)
    50 - 120 mg per day
  - Timolol (Blocadren)
    10 - 30 mg per day
- Calcium Channel Blockers
  - Verapamil (Calan SR)
    120 - 480 mg per day
  - Nifedipine (Adalat, Procardia)
    30 - 180 mg per day
  - Diltiazem (Cardizem)
    120 to 360 mg per day

Prophylactic Treatment of Migraine Headaches

- Antidepressants
  - Amitriptyline 10 - 250 mg/day
  - Nortriptyline (Aventyl, Pamelor) 10 - 100 mg/day
  - Trazodone (Desyrel) 150 - 600 mg/day
  - Fluoxetine (Prozac) 20 - 80 mg/day
- Serotonin Antagonist
  - Methysergide 2 - 8 mg per day in divided doses is an effective antimigraine agent
  - treatment should be interrupted for 1 month every 3 - 6 mos to reduce the risk of fibrosis

Headaches are hereditary....

- You get them from your children!